

CLAIMS

I claim:

1. A current sensor for measuring a time varying current flowing through a conductor, comprising:

a plurality of surface coils, at least some of said coils being substantially uniformly spaced around a central cavity for receiving the conductor, and substantially equidistant from said cavity, said substantially uniformly spaced coils being oriented substantially axially and radially relative to an axis of said cavity, at least some of said substantially uniformly spaced coils being electrically interconnected such that output voltages of said coils are combined and applied to output terminals of said sensor.
2. A current sensor according to claim 1 wherein at least one of said electrically interconnected surface coils comprises a printed circuit.
3. A current sensor according to claim 2 wherein at least one printed circuit has a first surface and a second surface, the first surface being opposite to the second surface, the first surface being provided with at least one surface coil.
4. A current sensor according to claim 3 wherein the second surface is provided with at least one surface coil.
5. A current sensor according to claim 4 wherein said surface coils on both said surfaces are interconnected.
6. A current sensor according to claim 5 wherein said surface coils on both said surfaces are connected in series.
7. A current sensor according to claim 1 wherein at least one of said surface coils includes a plurality of conductive loops.
8. A current sensor according to claim 1 wherein said current sensor further comprises a housing in which said surface coils are disposed.

9. A current sensor according to claim 8 wherein said housing is divided into at least two sections, such that said sections may be spread apart, to allow entry of said conductor into said cavity.
10. A current sensor according to claim 9 wherein said housing further comprises at least one hinge for pivotally connecting said sections.
11. A current sensor according to claim 9 comprising means for holding said housing sections in a closed position.
12. A current sensor according to claim 1 wherein said surface coils are interconnected in series such that the voltages are all additive.
13. A current sensor according to claim 1 wherein said surface coils are disposed on at least one flexible substrate.
14. A current sensor according to claim 13 wherein at least two coils are disposed on a single flexible substrate, and wherein said coils are interconnected by at least one interconnection disposed on the same substrate.
15. For a current sensor for measuring a time varying current flowing through a conductor, a coil comprising a substrate having a first surface and a second surface, the first surface being opposite to the second surface, the first surface being provided with at least one surface coil and the second surface being provided with at least one surface coil, wherein said surface coils on both said surfaces are interconnected.
16. A coil according to claim 15 wherein the substrate is substantially planar.
17. A coil according to claim 16 wherein said surface coils on both said surfaces are connected in series.
18. A coil according to claim 16 wherein at least one of said surface coils includes a plurality of conductive loops.
19. A coil according to claim 16 wherein the substrate is substantially rigid.
20. A coil according to claim 15 wherein the substrate is flexible.